Bangladesh J. Plant Taxon. **20**(2): 213-231, 2013 (December)

ANGIOSPERM FLORA OF SADAR UPAZILA OF MUNSHIGANJ DISTRICT, BANGLADESH

M. OLIUR RAHMAN[1], MOMTAZ BEGUM AND MD. WAJIB ULLAH

Department of Botany, University of Dhaka, Dhaka 1000, Bangladesh

Keywords: Floristics; Angiosperms; Munshiganj; Taxonomy.

Abstract

Investigation to make inventory of the angiosperm species diversity in the local flora of Sadar Upazila of Munshiganj district has been made. A total of 240 taxa in 186 genera under 68 families are recognized, and enumerated citing each species with updated nomenclature, Bangla names, habit, habitat, phenology, potential value, status of occurrence in the area and voucher specimens. Of these 240 taxa, Magnoliopsida is represented by 195 taxa in 146 genera and 55 families, whereas Liliopsida by 45 taxa under 40 genera and 13 families. The local people of the area use over 50 medicinal plants as sources of medicine for their primary health care. Some species are assessed as rare to this local flora which need to be brought under conservation management for environmental sustainability of the area.

Introduction

Munshiganj Sadar, an administrative Upazila of Munshiganj district comprises an area of 160.79 sq. km., and is consisted of 9 administrative unions, namely Adhara, Bajra Jogini, Char Kewar, Char Siloi, Mahakali, Mollakandi, Panchasar, Rampal and Rekabi Bazar. The Upazila witnesses the same climatic condition as other parts of the district. The hot summer, the long rainy season and the pleasant spring-cum-winter are the main noticeable seasons prevailing in the locality. The temperature of the area fluctuates between 12.7˚C and 33.7˚C throughout the year. Monthly average relative humidity varies from 62 to 83%, and monthly rainfall ranges from 7.7 to 373.1 mm throughout the year (BBS, 2011). There are three types of soil in the adjoining areas of Munshiganj Sadar Upazila, *viz.*, heavy clayey soil that prevails over the major part of the study area, light clayey soil which occupies the second position in the area, and heavy loamy soil prevails over small area. The Upazila presents diverse habitats including scrub jungles, homesteads, *char* lands, riparian, roadsides and wetlands.

Over the last few decades several attempts have been made on the floristic studies in Bangladesh, particularly in the forest and protected areas (Khan and Afza, 1968; Khan and Banu, 1972; Khan and Hassan, 1984; Rahman and Hassan, 1995; Rahman and Uddin, 1997; Uddin and Rahman, 1999; Khan and Huq, 2001; Uddin and Hassan, 2004; Tutul *et al*., 2009, 2010; Arefin *et al*., 2011; Uddin and Hassan, 2012). Studies on angiosperm flora in different Upazilas of Bangladesh are limited (Islam *et al.*, 2009; Rahman *et al*., 2012; Moniruzzaman *et al*., 2012; Rahman and Alam, 2013), however, there has been no floristic study on Munshigonj Sadar Upazila. The main objectives of the present study are to explore, identify and document the angiosperms of Munshiganj Sadar Upazila.

[1]Corresponding author. Email: dr_oliur@yahoo.com

Fig. 1. Map of Munshiganj Sadar Upazila showing the sampling sites of different unions.

Materials and Methods

The work is based on fresh materials collected from Sadar Upazila of Munshiganj district from May 2012 to April 2013 (Fig. 1). Plant specimens were collected from different areas within nine unions of the Upazila and processed using standard herbarium techniques (Hyland, 1972). Collected plant specimens were critically studied, examined and identified at the department of Botany, University of Dhaka. Identification was confirmed by experts, by comparing with herbarium specimens deposited both at Dhaka University Salar Khan Herbarium (DUSH) and Bangladesh National Herbarium (DACB), and by consulting standard floras and literature, *viz.*, Hooker (1872-1897), Prain (1903), Khan (1972-1987), Dassanayake and Fosberg (1980-1985), Khan and Rahman (1989-2002), Siddiqui *et al.* (2007), Ahmed *et al.* (2008a,b, 2009a,b,c,d) and Rashid and Rahman (2011, 2012). The identified families are arranged according to Cronquist's

system of plant classification (Cronquist, 1981), and the genera and species under each family are arranged in an alphabetical order. Each species is furnished with updated nomenclature, Bangla names (wherever available), habit, habitat, phenology, potential value, status of occurrence in the area and voucher specimens. Voucher specimens are deposited in DUSH.

Results and Discussion

Taxonomic study of angiosperm flora of Munshiganj Sadar Upazila has revealed a total of 240 angiosperm taxa under 186 genera and 68 families (Table 1). Among them Magnoliopsida (dicotyledons) is represented by 195 taxa belonging to 146 genera and 55 families, whereas Liliopsida (monocotyledons) having comparatively less representation, only 45 species under 40 genera and 13 families. The study has revealed that Magnoliopsida constitutes about 81% of the total, while Liliopsida constitutes 19% of the total angiosperm flora. In Magnoliopsida, Asteraceae appears as the largest family comprising 13 species under 13 genera followed by Euphorbiaceae, Moraceae, Fabaceae and Mimosaceae. In Liliopsida, Poaceae is the largest family with 23 species under 19 genera followed by Araceae, Arecaceae, Commelinaceae and Cyperaceae. In the study area the number of species in the families varies from 1 to 23. Out of 68 families recorded, each of 27 families is represented by a single species. Five largest genera of dicotyledons are *Ficus* (7 species), *Amaranthus* (4 species), *Persicaria* (4 species), *Syzygium* (4 species) and *Ipomoea* (3 species); while that of monocotyledons are *Commelina*, *Echinochloa*, *Leptochloa* and *Brachiaria*, each with 2 species.

Among the total flora herbs are represented by 141 taxa, shrubs by 26 and trees by 73. Out of 68 families recorded, 10 dominant families are Poaceae, Asteraceae, Euphorbiaceae, Moraceae, Fabaceae, Mimosaceae, Solanaceae, Myrtaceae, Malvaceae and Rubiaceae. The dominant families along with the number of species and genera are shown in Figure 2. These ten families comprise 105 species that represent about 44% of the total species identified. The remaining 58 families with a total 135 species represent 56% of the total.

One of the important phenomena of the study area is that the Sadar Upazila presents *char* land. The major angiosperms of the *char* are *Alternanthera paronychyoides* St. Hill., *A. sessilis* (L.) R. Br. *ex*. Roem & Schult., *Brassica napus* L. (cultivated), *Chenopodium album* L., *Citrullus lanatus* (Thub.) Matsumura & Nakai (cultivated), *Cyanotis cristata* (L.) D. Don, *Glinus oppositifolius* (L.) A. DC., *Gnaphalium luteo-album* L., *Grangea maderaspatana* (L.) Poir. and *Oxalis corniculata* L. The common riparian plants are *Brachiaria decumbens* Stapf, *Coix aquatica* Roxb., *Crateva magna* (Lour.) DC., *Ipomoea fistulosa* Mart. *ex* Choisy, *Operculina turpethum* (L.) S. Manso, *Persicaria barbata* (L.) Hara, *P. lapathifolia* (L.) S. F. Gray, *Phragmites karka* (Retz.) Trin. *ex* Steud. and *Saccharum spontaneum* L. The common roadside plants include *Albizia lebbeck* (L.) Benth. & Hook., *A. procera* (Roxb.) Benth., *Commelina benghalensis* L., *Euphorbia hirta* L., *Ficus benghalensis* L., *F. racemosa* L., *Sida acuta* Burm. f. and *Spilanthes calva* DC. The upazila provides several aquatic habitats including ponds, *beels*, *jheels*, rivers, etc. which offer luxuriant formation of angiosperm flora. Some common aquatic angiosperms are *Barringtonia acutangula* (L.) Gaertn., *Eichhornia crassipes* (Mart.) Solms, *Enhydra fluctuans* Lour., *Hygrorhyza aristata* (Retz.) Nees, *Ipomoea aquatica* Forssk., *Lemna perpusilla* Torrey, *Ludwigia adscendens* (L.) Hara, *L. hyssopifolia* (G. Don) Exell Apud A. & R. Fern., *Nymphaea nouchali* Burm. f., *N. pubescens* Willd., *N. rubra* Roxb. *et* Andr., *Nymphoides hydrophylla* (Lour.) O. Kuntze, *Ottelia alismoides* (L.) Pers., *Panicum paludosum* Roxb., *Persicaria barbata* (L.) Hara, *P. lanata* (Roxb.) Hassan, *P. orientalis* (L.) Spach, *Phragmites karka* (Retz.) Trin. *ex* Steud., *Pistia stratiotes* L. and *Vallisneria spiralis* L.

Table 1. Enumeration of angiosperm taxa of Munshiganj Sadar Upazila.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
Magnoliopsida							
1. Annonaceae							
1. *Annona reticulata* L.	Sharifa	Tree	H	Oct - Jan	Fruits edible	Cultivated	W 303
2. *Annona squamosa* L.	Ata	Tree	H	Mar - Oct	Fruits edible	Cultivated	W 323
3. *Polyalthia longifolia* (Sonn.) Thw.	Debdaru	Tree	R	Mar - Oct	Timber, ornamental	Cultivated	W 266
2. Piperaceae							
4. *Peperomia pellucida* (L.) H. B. & K.	Luchipata	Herb	W	Jan - Dec	Medicinal	Common	W 69
3. Nymphaeaceae							
5. *Nymphaea nouchali* Burm. f.	Nil shapla	Herb	A	Jan - Dec	Vegetable	Common	W 29
6. *N. pubescens* Willd.	Shapla	Herb	A	Aug - Jan	Vegetable, medicinal	Common	W 34
7. *N. rubra* Roxb. *et* Andr.	Lal shapla	Herb	A	Jan - Dec	Vegetable	Common	W 111
4. Ranunculaceae							
8. *Ranunculus sceleratus* L.	Jal-dhonia	Herb	C	Feb - Mar	Medicinal	Common	W 287
5. Menispermaceae							
9. *Cissampelos pareira* L.	Akandi	Herb	S	Feb - Jul	Medicinal	Rare	W231
10. *Cyclea barbata* Miers	Patalpur	Herb	S	Mar - Nov	–	Common	W 148
11. *Stephania japonica* (Thunb.) Miers	Maknadi	Herb	S	Mar - Sep	Medicinal	Common	W232
12. *Tiliacora acuminata* (Lamk.) Hook. f. & Thoms.	Bhag lata	Shrub	S	Mar - Dec	Thatching	Rare	W 77
6. Moraceae							
13. *Artocarpus heterophyllus* Lamk.	Kanthal	Tree	H, R	Feb - Jun	Fruits edible	Cultivated	W 271
14. *A. lacucha* Buch.-Ham.	Dewa	Tree	H, R	Feb - Sep	Fruits edible	Cultivated	W 263
15. *Ficus benghalensis* L.	Bot	Tree	R, Ri	Mar - Aug	Medicinal	Common	W 325
16. *F. elastica* Roxb. *ex* Hornem	Rubber gach	Tree	R, Ri	Mar - Apr	Rubber	Cultivated	W 19
17. *F. heterophylla* L. f.	Bhui-dumur	Shrub	R, S	Nov - Feb	Medicinal	Common	W 87
18. *F. hispida* L. f.	Dumur	Tree	R	Apr - Sep	Medicinal	Common	W 34
19. *F. racemosa* L.	Gulang dumur	Tree	R, Ri	Mar - Nov	Medicinal	Common	W 47

Table 1 contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
20. *F. religiosa* L.	Panbot	Tree	R, Ri	Mat - Sep	Medicinal	Common	W 194
21. *F. rumphii* Bl.	Sunamjor	Tree	R	Mar - Nov	Fruits edible	Common	W 30
22. *Morus alba* L.	Tut	Tree	S	Jan - Dec	Fruits edible, medicinal	Cultivated	W 225
23. *Streblus asper* Lour.	Sheora	Tree	S	Apr - Nov	Medicinal	Common	W 32
7. Urticaceae							
24. *Laportea interrupta* (L.) Chew	Lal Bichuti	Herb	S	May - Sep	Medicinal	Common	W 350
8. Chenopodiaceae							
25. *Chenopodium album* L.	Bothua shak	Herb	C	Dec - Mar	Leafy vegetable, medicinal	Common	W 213
26. *C. ambrosioides* L.	Chandanbetu	Herb	C	Nov - Mar	Medicinal	Common	W 53
9. **Amaranthaceae**							
27. *Alternanthera paronychioides* St. Hill.	Juli-khata	Herb	W	Jan - May	Vegetable	Rare	W 54
28. *A. sessilis* (L.) R. Br. *ex*. Roem & Schult.	Sachi -shak	Herb	W	Nov - Jul	Medicinal, vegetable	Common	W 11
29. *Amaranthus dubius* Mart.	Not known	Herb	R, W	Jan - Dec	Vegetable	Common	W 127
30. *A. spinosus* L.	Kanta notey	Herb	R, W	Jan - Dec	Leafy vegetable, medicinal	Common	W 39
31. *A. tricolor* L.	Lalshak	Herb	R, W	Jan - Dec	Vegetable	Cultivated	W 239
32. *A. viridis* L.	Notey shak	Herb	R	Dec - Apr	Leafy vegetable	Common	W 26
10. Portulacaceae							
33. *Portulaca oleracea* L.	Nuntashak	Herb	W	Jan - Dec	Leafy vegetable, medicinal	Common	W253
11. Molluginaceae							
34. *Glinus oppositifolius* (L.) A. DC.	Gima shak	Herb	C	Oct - Jan	Leafy vegetable	Common	W 25
12. Polygonaceae							
35. *Persicaria barbata* (L.) Hara	Bishkatali	Herb	A	Aug - Apr	Medicinal	Rare	W 321
36. *P. lanata* (Roxb.) Hassan	Shet-panimorich	Herb	A	Apr - Sep	Aquatic ornamental	Rare	W 195
37. *P. lapathifolia* (L.) S. F. Gray	Panimorich	Herb	A	Feb - May	Antibaterial	Rare	W 185
38. *P. orientalis* (L.) Spach	Bara panimorich	Herb	A	Mar - Aug	Antibaterial	Common	W 08
39. *Polygonum effusum* Meissn.	Raniphul	Herb	C	Feb - May	Leafy vegetable	Rare	W 216
40. *P. plebeium* R. Br.	Chemtisag	Herb	Ri	Jan - Apr	Leafy vegetable, antibaterial	Common	W 315

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
13. Dilleniaceae							
41. *Dillenia indica* L.	Chalta	Tree	R, H	May - Feb	Timber, fruits edible	Cultivated	W 150
14. Elaeocarpaceae							
42. *Elaeocarpus floribundus* Blume	Jalpai	Tree	H	May - Jun	Fruits edible	Cultivated	W 246
15. Tiliaceae							
43. *Corchorus capsularis* L.	Deshi pat	Herb	W	Aug - Feb	Fibre	Cultivated	W 158
16. Sterculiaceae							
44. *Abroma augusta* (L.) L. f.	Ulotkombol	Shrub	R	Jun - Dec	Medicinal	Rare	W 84
45. *Melochia corchorifolia* L.	Tiki-okra	Herb	W	Mar - Jun	–	Common	W 152
17. Bombacaceae							
46. *Bombax ceiba* L.	Shimul	Tree	R, Ri	Feb - May	Fibre	Planted	W 214
18. Malvaceae							
47. *Abutilon indicum* (L.) Sweet	Petari	Herb	R, S	Jul - Apr	Medicinal	Common	W 90
48. *Gossypium arboreum* L.	Tula	Shrub	W	Oct - Jan	Fibre	Cultivated	W 259
49. *Malvaviscus arboreus* Cav.	Not known	Tree	H	Not recorded	Ornamental	Cultivated	W 91
50. *Sida acuta* Burm. f.	Kureta	shrub	R, W	Sep - May	Medicinal	Common	W 100
51. *S. rhombifolia* L.	Kureta	Herb	R, W	Jul - Dec	Medicinal	Common	W 31
52. *Urena lobata* L.	Ban-okhra	shrub	R, W	Oct - Apr	Fibre	Common	W 07
19. Lecythidaceae							
53. *Barringtonia acutangula* (L.) Gaertn.	Hijal	Tree	M	May - Sep	Medicinal	Common	W 46
20. Cucurbitaceae							
54. *Citrulus lanatus* (Thunb.) Matsumura & Nakai	Tarmuj	Herb	C	Mar - Sep	Fruits edible	Cultivated	W 65
55. *Coccinia grandis* (L.) Voigt.	Telakucha	Herb	S	Mar - Nov	Medicinal	Common	W 14
56. *Luffa cylindrica* (L.) M. Roem.	Dhundul	Herb	H	Jun - Dec	Vegetable	Cultivated	W 147
57. *Momordica charantia* L. var. *charantia* C.B. Clarke	Korolla	Herb	H	May - Oct	Vegetable, medicinal	Cultivated	W 173

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
21. Capparaceae							
58. *Cleome rutidosperma* DC.	Not known	Herb	R, W	Jan - Dec	–	Common	W 27
59. *Crateva magna* (Lour.) DC.	Barun	Tree	R, Ri	Feb - Apr	Medicinal	Common	W 79
22. Brassicaceae							
60. *Brassica napus* L.	Sarisha	Herb	C	Mar - Jul	Oil, vegetable	Cultivated	W 15
61. *Rorippa indica* (L.) Hiern	Bonsharisha	Herb	C	Jan - Jun	Medicinal	Common	W 38
62. *R. palustris* (L.) Bess.	Panisarisha	Herb	C, W	Mar - Oct	Antiscorbutic	Rare	W 289
23. Moringaceae							
63. *Moringa oleifera* Lamk.	Sajina	Tree	H	Oct - Mar	Vegetable, medicinal	Cultivated	W 333
24. Sapotaceae							
64. *Manilkara zapota* (L.) P. van Royen	Sofeda	Tree	H	Jan - Dec	Fruits edible	Cultivated	W 188
25. Ebenaceae							
65. *Diospyros malabarica* (Desr.) Kostel.	Gab	Tree	H	May - Aug	Medicinal	Common	W 178
66. *D. montata* Roxb.	Bon gab	Tree	H, S	Mar - May	Timber, fish poisoning	Rare	W 326
26. Mimosaceae							
67. *Acacia auriculiformis* A. Cunn. *ex* Benth. & Hook.	Akashmoni	Tree	R	Jun - Feb	Timber, ornamental	Planted	W 205
68. *A. mangium* Willd.	Mangium	Tree	R	May - Dec	Timber	Planted	W 306
69. *Albizia lebbeck* (L.) Benth. & Hook.	Kala koroi	Tree	H, R, Ri	May - Dec	Timber	Common	W 244
70. *A. lucidior* (Steud.) Nielsen	Sil koroi	Tree	H, R, Ri	May - Oct	Timber	Common	W 327
71. *A. procera* (Roxb.) Benth.	Koroi	Tree	H, R	May - Dec	Timber	Common	W 229
72. *A. richardiana* (Voigt.) King & Prain	Gagan siris	Tree	H, R	Aug - Dec	Timber	Rare	W 251
73. *Leucaena leucocephala* (Lamk) de Wit.	Ipil-ipil	Tree	H, R	Mar - Nov	Timber, dye, forage	Planted	W 75
74. *Mimosa pudica* L.	Lajjabati	Herb	W	Jan - Dec	Soil binder, medicinal	Common	W 162
75. *Neptunia oleracea* Lour.	Panilajak	Herb	A	Sep - Jul	Food, drink, medicinal	Rare	W 296
76. *Pithecellobium dulce* (Roxb.) Benth.	Jilapi	Shrub	R, W	Jan - Jul	Hedge plant, dye, drink	Planted	W 108

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
27. Caesalpiniaceae							
77. *Bauhinia purpurea* L.	Lalkanchan	Shrub	R	Nov - May	Ornamental	Planted	W 270
78. *Saraca asoca* (Roxb.) de Wild.	Ashok	Tree	R	Feb - Jun	Medicinal	Planted	W 17
79. *Senna occidentalis* Roxb.	Barakalkesunda	Herb	R, W	May - Oct	Ornamental	Common	W 144
80. *S. tora* (L.) Roxb.	Kalkasham	Herb	R, W	Jan - Dec	Medicinal	Common	W 59
81. *Tamarindus indica* L.	Tentul	Tree	H, Ri	Apr - Dec	Fruits edible, medicinal	Cultivated	W 302
28. Fabaceae							
82. *Butea monosperma* (Lamk.) Taub.	Palash	Tree	R	Jan - Apr	Ornamental	Common	W 329
83. *Cajanus cajan* (L.) Millsp.	Arhar	Shrub	R	Dec - Apr	Pulse	Cultivated	W 247
84. *Dalbergia sissoo* Roxb.	Shishu	Tree	R	Mar - Aug	Timber	Cultivated	W 206
85. *Desmodium heterocarpon* (L.) DC.	Not known	shrub	R	Mar - Jul	–	Rare	W 97
86. *Erythrina fusca* Lour.	Kanta mandar	Tree	R, W	Feb - May	Hedge plant, firewood	Common	W 273
87. *Lathyrus aphaca* L.	Jangli motor	Herb	C	Nov - Mar	Fodder, nitrogen fixation	Common	W 283
88. *L. sativus* L.	Khesari	Herb	C	Feb - Sep	Pulse	Cultivated	W 286
89. *Pisum sativum* L.	Motor	Herb	C	Nov - Mar	Pulse	Cultivated	W 284
90. *Sesbania bispinosa* (Jacq.) Wight.	Dhaincha	Herb	W	May - Oct	Fibre, nitrogen fixation	Cultivated	W 116
91. *Vicia sativa* L.	Ankari	Herb	C	Jul - Nov	Fodder, nitrogen fixation	Rare	W 285
29. Lythraceae							
92. *Lagerstroemia speciosa* (L.) Pers.	Jarul	Tree	R	Apr - Aug	Ornamental, timber	Cultivated	W 224
93. *Lawsonia inermis* L.	Mehedi	Shrub	H	Jun - Dec	Dye, medicinal	Planted	W 307
30. Myrtaceae							
94. *Eucalyptus camaldulensis* Dehnhardt	Eucalyptus	Tree	R	Jan - Dec	Timber, charcoal, post	Planted	W 19
95. *E. grandis* Hill *ex* Maiden	Eucalyptus	Tree	R	Jan - Dec	Ornamental, timber	Planted	W 249
96. *Psidium guajava* L.	Peyara	Tree	H	Jan - Dec	Fruits edible	Cultivated	W 260
97. *Syzygium balsameum* (Wight) Walp.	Buti jam	Tree	H	Oct - Mar	Fruits edible	Rare	W 330

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
98. *S. cumini* (L.) Skeels	Kalo-jam	Tree	H	Mar - Jun	Fruits edible, medicinal	Cultivated	W 190
99. *S. jambos* (L.) Alston	Gulab-jam	Tree	H	Mar - Jun	Fruits edible	Cultivated	W 254
100. *S. samarangense* (Blume) Merr. & Perry	Jamrul	Tree	H	Mar - Jul	Fruits edible	Cultivated	W 238
31. Punicaceae							
101. *Punica granatum* L.	Dalim	Shrub	H	Jan - Dec	Fruits edible, medicinal	Cultivated	W 274
32. Onagraceae							
102. *Ludwigia adscendens* (L.) Hara	Kesardam	Herb	A	Mar - Dec	Medicinal	Common	W 291
103. *L. hyssopifolia* (G. Don) Exell	Not known	Herb	A	Jan - Dec	–	Common	W 42
104. *L. prostrata* Roxb.	Not known	Herb	R	Jan - Sep	Forage	Common	W 36
33. Combretaceae							
105. *Terminalia arjuna* (Roxb. *ex* DC.) Wight & Arn.	Arjun	Tree	H, R	Apr - Oct	Medicinal	Planted	W 272
106. *T. bellirica* (Gaertn.) Roxb.	Bohera	Tree	H	Mar - Nov	Medicinal	Planted	W 340
107. *T. catappa* L.	Katbadam	Tree	H	Mar - Dec	Medicinal, dye, oil	Planted	W 341
34. Euphorbiaceae							
108. *Acalypha indica* L.	Muktajhuri	Herb	W	Dec - Apr	Medicinal	Rare	W 57
109. *Chrozophora rottleri* (Geiseler) A. Juss. *ex* Spreng.	Khudi okra	Herb	R, W	Mar - Oct	Medicinal	Common	W 60
110. *Codiaeum variegatum* (L.) A. Juss.	Patabahar	Herb	H	Jan - Dec	Ornamental	Planted	W 179
111. *Croton bonplandianus* Baill.	Croton	Herb	R, W	Apr - Sep	Antiseptic	Common	W 19
112. *Euphorbia hirta* L.	Dhudia	Herb	R, W	Feb - Mar	Medicinal	Common	W 23
113. *E. thymifolia* L.	Dhudia	Herb	R	Jan - Dec	Medicinal	Common	W 28
114. *Pedilanthus tithymaloides* Poit.	Rangchita	Shrub	W	Mar - Dec	Medicinal, hedge plant	Common	W 92
115. *Phyllanthus acidus* (L.) Skeels	Orboroi	Tree	H	Mar - Dec	Fruits edible	Planted	W 339
116. *P. niruri* L.	Bhui-amla	Herb	R, W	Aug - Oct	Medicinal	Common	W 74
117. *P. reticulatus* Poir.	Chitki	Shrub	R, W	Jun - Oct	Medicinal	Common	W 67
118. *Ricinus communis* L.	Venna	Shrub	R, S	Sep - Feb	Medicinal, oil	Common	W 18
119. *Trewia nudiflora* L.	Pitali	Tree	R	May - Oct	Medicinal	Common	W 136

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
35. Rhamnaceae							
120. *Ziziphus mauritiana* Lamk.	Boroi	Tree	H	Sep - Mar	Fruits edible	Cultivated	W 309
121. *Z. oenoplia* (L.) Mill.	Ban boroi	Tree	S	Aug - Dec	Medicinal	Common	W 318
36.Vitaceae							
122. *Cayratia trifolia* (L.) Domin	Amal lata	Herb	S	Not recorded	–	Rare	W 85
37. Sapindaceae							
123. *Cardiospermum helicacabum* L.	Phutca	Herb	R, W	Apr - Jun	Medicinal	Common	W 223
124. *Litchi chinensis* Sonn.	Litchu	Tree	H	Apr - Jun	Fruits edible	Planted	W 345
38. Anacardiaceae							
125. *Mangifera indica* L.	Aam	Tree	H	Jan - Jun	Fruits edible	Planted	W 225
126. *Spondius pinnata* (L. f.) Kurtz	Amra	Tree	H	Feb - Aug	Fruits edible	Planted	W 201
39. Meliaceae							
127. *Aphanamixis polystachya* (Wall.) R. N. Parker	Pitraj	Tree	R	Feb - May	Timber, medicinal	Common	W 191
128. *Azadirachta indica* A. Juss.	Neem	Tree	H, R	Mar - Jul	Medicinal	Common	W 294
129. *Melia azedarach* L.	Goranim	Tree	R	Mar - Feb	Medicinal	Common	W 258
130. *Swietenia mahagoni* Jacq.	Mahogoni	Tree	H, R	Apr - Oct	Timber	Planted	W 242
40. Rutaceae							
131. *Aegle marmelos* (L.) Correa	Bel	Tree	H	May - Jul	Fruits edible, medicinal	Planted	W 317
132. *Citrus limon* (L.) Burm. f.	Goralebu	Tree	H	Mar - Nov	Fruits edible	Planted	W 256
133. *C. maxima* (Burm.) Merr.	Jambura	Shrub	H	Feb - Nov	Fruits edible	Planted	W 180
134. *Limonia acidissima* L.	Kothbel	Tree	H	Feb - Dec	Fruits edible	Planted	W 337
135. *Murraya paniculata* (L.) Jack	Kamini	Shrub	R	Mar - Jan	Ornamental, medicinal	Planted	W 269

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
41. Oxalidaceae							
136. *Averrhoa carambola* L.	Kamranga	Tree	H	Oct - Jul	Fruits edible	Planted	W 176
137. *Oxalis corniculata* L.	Amrul	Herb	W	Sep - May	Medicinal	Common	W 29
42. Apiaceae							
138. *Centella asiatica* (L.) Urban	Thankuni	Herb	W	Apr - Oct	Medicinal	Common	W 62
43. Apocynaceae							
139. *Alstonia scholaris* (L.) R. Br.	Chatim	Tree	R	Nov - May	Medicinal, Oil	Common	W 300
140. *Carissa carandas* L.	Karamcha	Tree	H	Mar - Nov	Fruits edible	Planted	W 342
141. *Tabernaemontana divaricata* (L.) R. Br. *ex* Roem. & Schult.	Tagar	Shrub	H	May - Dec	Ornamental	Common	W 345
44. Asclepiadaceae							
142. *Calotropis procera* (Ait.) R. Br.	Akando	Shrub	R, Ri	Jan - Dec	Medicinal	Common	W 50
45. Solanaceae							
143. *Capsicum frutescens* L.	Kacha morich	Herb	H	Jan - Dec	Spice	Planted	W 22
144. *Datura metel* L.	Dhutura	Herb	S, W	Apr - Sep	Medicinal	Common	W 09
145. *Nicotiana plumbaginifolia* Viv.	Ban tamak	Herb	W	Mar - Oct	–	Common	W 02
146. *Physalis angulata* L.	Fotka	Herb	W	Feb - Aug	Medicinal	Rare	W 82
147. *P. minima* L.	Fotka	Herb	W	Jan - Dec	Medicinal	Common	W 304
148. *Solanum torvum* Swartz	Gota begun	Herb	R, W	Jan - Dec	Tender fruits as vegetable	Common	W 51
149. *S. villosum* Mill.	Tit begun	Herb	R	Feb - Aug	–	Rare	W 35
46. Convolvulaceae							
150. *Calystegia hederacea* Wall.	Not known	Herb	W	Dec - Feb	–	Rare	W 252
151. *Ipomoea aquatica* Forssk.	Kolmishak	Herb	A	Oct - Feb	Leafy vegetable	Common	W 113
152. *I. batatas* (L.) Lamk.	Misti alu	Herb	W	Dec - May	Tubers edible	Cutivated	W 164

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
153. *I. fistulosa* Mart. *ex* Choisy	Dholkolmi	Shrub	R, Ri	Jan - Dec	Hedge plant	Common	W 123
154. *Operculina turpethum* (L.) S. Manso	Dudh kalmi	Herb	Ri	Oct - May	Medicinal	Common	W 298
47. Cuscutaceae							
155. *Cuscuta reflexa* Roxb.	Swarnalata	Herb	S	Jan - Apr	Medicinal	Common	W 109
48. Menyanthaceae							
156. *Nymphoides hydrophylla* (Lour.) Kuntze	Ponchuli	Herb	A	Oct - Feb	Medicinal	Common	W 166
49. Boraginaceae							
157. *Heliotropium indicum* L.	Hatishur	Herb	R, W	Jan - Dec	Medicinal	Common	W 05
50. Verbenaceae							
158. *Gmelina arborea* Roxb.	Gamari	Tree	R	Feb - Sep	Timber	Planted	W 335
159. *Lippia alba* (Mill.) Briton *ex* Wilson	Pichas-lakri	Shrub	R, S	Jan - Dec	Medicinal	Common	W 06
160. *Phyla nodiflora* (L.) Greene	Bhuiokra	Herb	C	Jan - Dec	Medicinal	Common	W 24
161. *Tectona grandis* L. f.	Shegun	Tree	R	Jul - Nov	Timber	Planted	W 336
162. *Vitex negundo* L.	Nishinda	Shrub	R, S	Apr - Feb	Medicinal	Common	W 337
51. Lamiaceae							
163. *Hyptis suaveolens* (L.) Poir.	Tokma	Herb	W	Nov - Apr	Medicinal	Common	W 138
164. *Leonurus sibiricus* L.	Roktodron	Herb	R, W	Jan - Dec	Medicinal	Rare	W 01
165. *Leucas aspera* (Willd.) Link	Shetodron	Herb	W	Jan - Dec	Medicinal, leafy vegetable	Common	W 03
52. Scrophulariaceae							
166. *Lindernia antipoda* (L.) Alston	Not known	Herb	C	Jan - Dec	–	Common	W 83
167. *L. crustacea* (L.) F. Muell	Not known	Herb	C	Apr - Dec	Medicinal	Common	W 66
168. *L. hyssopioides* (L.) Haines	Not known	Herb	C	Aug - May	–	Rare	W 310
169. *L. multiflora* (Roxb.) Mukerjee	Not known	Herb	C	Jun - Nov	–	Common	W 314
170. *Mecardonia procumbens* (Mill.) Small	Not known	Herb	R	Feb - Jun	–	Common	W 313
171. *Scoparia dulcis* L.	Bondhone	Herb	R, W	Dec - Jan	Medicinal	Common	W 04

Tabe 1 Contd.

Taxa	Bangla name	Habit	Habit at	Phenology	Potential value	Status of occurrence	Voucher specimens
53. Acanthaceae							
172. *Dipteracanthus prostratus* (Poir.) Nees	Not known	Herb	W	May - Aug	Medicinal	Rare	W 139
173. *Hygrophila phlomoides* Nees	Lotpiple	Herb	C	Oct - Dec	Head-ache	Rare	W 267
174. *Justicia gendarussa* Burm. f.	Jagatmardan	Shrub	R	Dec - May	Medicinal, hedge plant	Common	W 80
175. *Ruellia tuberosa* L.	Chatpoty	Herb	W	Jan - Feb	Ornamental	Common	W 16
176. *Rungia pectinata* (L.) Nees	Pindi	Herb	W	Nov - May	Medicinal	Common	W 228
54. Rubiaceae							
177. *Dentella serpyllifolia* Wall. *ex* Craib	Bhuipat	Herb	W	Nov - Jul	–	Rare	W 12
178. *Hedyotes corymbosa* (L.) Lamk.	Panki	Herb	C, W	Jan - Dec	Medicinal	Common	W 44
179. *Hyptianthera stricta* (Roxb.) Wight & Arn.	Tahi seing	Tree	R	Feb - May	Firewood	Rare	W 102
180. *Neolamarckia cadamba* (Roxb.) Bosser	Kadam	Tree	R	May - Aug	Timber, ornamental	Planted	W 230
181. *Spermacoce latifolia* Aublet	Ghuiojhil shak	Herb	R	Dec - Apr	–	Common	W 98
182. *S. stricta* L. f.	Bishmijal	Herb	R	Dec - May	Antimicrobial	Rare	W 93
55. Asteraceae							
183. *Ageratum conyzoides* L.	Fulkuri	Herb	R, W	Sep - Jun	Medicinal	Common	W 61
184. *Blumea membranacea* Wall *ex* DC.	Not known	Herb	W	Jan - Mar	–	Common	W 125
185. *Eclipta alba* (L.) Hassk	Kesaraj	Herb	R, W	Jan - Dec	Medicinal	Common	W 41
186. *Enhydra fluctuans* Lour.	Helencha	Herb	A	Jan - Apr	Leafy vegetable, medicinal	Common	W 145
187. *Gnaphalium luteo-album* L.	Bara karma	Herb	C	Mar - Aug	Medicinal	Common	W 211
188. *Grangea maderaspatana* (L.) Poir.	Nemuti	Herb	C	Dec - May	Medicinal	Common	W 212
189. *Mikania cordata* (Burm. f.) Robinson	Tarulata	Herb	S	Oct - Feb	Medicinal	Common	W 13
190. *Sonchus oleraceus* L.	Totlea	Herb	W	Feb - May	–	Common	W 149
191. *Spilanthes calva* DC.	Marhatitiga	Herb	R	Jan - Dec	Medicinal	Common	W 10
192. *Synedrella nodiflora* (L.) Gaertn.	Shialmoti	Herb	R, W	Jan - Dec	Medicinal	Common	W 78

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
193. *Vernonia cinerea* (L.) Less.	Shial lata	Herb	R, W	May - Sep	Medicinal	Common	W 20
194. *Xanthium indicum* Koen. *ex* Roxb.	Gaghra	Herb	W	Jan - Dec	Leafy vegetable, medicinal	Common	W 198
195. *Youngia japonica* (L.) DC.	Not known	Herb	R	Aug - Jan	–	Common	W 187
Liliopsida							
56. Alismataceae							
196. *Sagittaria sagittifolia* L.	Muyamuya	Herb	A	Oct - Dec	Fodder	Common	W 344
57. Hydrocharitaceae							
197. *Ottelia alismoides* (L.) Pers.	Panikola	Herb	A	Jan - Dec	Vegetable	Common	W 168
198. *Vallisneria spiralis* L.	Pat-seola	Herb	A	Oct - Mar	–	Common	W 135
58. Najadaceae							
199. *Najas indica* (Willd.) Cham	Not known	Herb	A	Jun - Sep	–	Common	W 132
59. Arecaceae							
200. *Areca catechu* L.	Supari	Tree	H	Jan - Dec	Masticatory, medicinal	Planted	W 334
201. *Borassus flabellifer* L.	Tal	Tree	H	Jan - Oct	Fruits edible, trunk for pillars and posts	Planted	W 349
202. *Phoenix sylvestris* Roxb.	Khejur	Tree	H, R	Dec - Jun	Fruits edible, leaves for mats and baskets	Planted	W 241
60. Araceae							
203. *Colocasia esculenta* (L.) Schott	Kochu	Herb	R, W	May - Oct	Vegetable, medicinal	Common	W 323
204. *Pistia stratiotes* L.	Topapana	Herb	A	Oct - Mar	Medicinal	Common	W 133
205. *Syngonium podophyllum* Schott	Bahari	Herb	W	Feb - Nov	Ornamental	Rare	W 40
206. *Typhonium flagelliforme* (Lodd.) Bl.	Ghetkachu	Herb	W	Apr - Oct	Medicinal	Common	W 167
207. *Xanthosoma violaceum* Schott	Kalokachu	Herb	W	Apr - Oct	Vegetable	Cultivated	W 248
61. Lemnaceae							
208. *Lemna perpusilla* Torrey	Khudipana	Herb	A	May - Sep	Water purifier	Common	W 316

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
62. Commelinaceae							
209. *Commelina benghalensis* L.	Dholpata	Herb	R, W	Feb - Dec	Green vegetable	Common	W 33
210. *C. longifolia* Lamk.	Pani-kanchira	Herb	W	Dec - Jan	–	Common	W 126
211. *Cyanotis cristata* (L.) D. Don	Kanua	Herb	C	Sep - Feb	Forage	Common	W 118
63. Cyperaceae							
212. *Cyperus rotundus* L.	Mutha	Herb	R, W	May - Sep	Medicinal	Common	W 217
213. *Kyllinga brevifolia* Rottb.	Not known	Herb	R, W	Mar - Dec	–	Common	W 343
64. Poaceae							
214. *Apluda mutica* L.	Not known	Herb	S	Jul - Sep	Medicinal	Common	W 210
215. *Bambusa balcooa* Roxb.	Barak bans	Herb	H	Mar - Sep	Household construction	Common	W 209
216. *Bothriochloa pertusa* (L.) A. Camus	Barboda ghas	Herb	W	Aug - Feb	Fodder	Rare	W 153
217. *Brachiaria decumbens* Stapf	Not known	Herb	R	Oct - Jan	Forage	Common	W 146
218. *B. kurzii* (Hook. f.) A. Camus	Not known	Herb	R, W	Jan - Dec	–	Rare	W 275
219. *Coix aquatica* Roxb.	Dhanga gurgas	Herb	R, W	Sep - Dec	–	Common	W 58
220. *Cynodon dactylon* L. Pers.	Durba ghas	Herb	R, W	Jul - Dec	Medicinal	Common	W 347
221. *Dactyloctenium aegyptium* (L.) P. Beauv.	Makra	Herb	W	Jan - Dec	–	Common	W 226
222. *Echinochloa colonum* (L.) Link	Shama ghas	Herb	C, W	Jan - Dec	Fodder	Common	W 277
223. *E. stagnina* (Retz.) P. Beauv.	Dul	Herb	C, W	Mar - Sep	Fodder	Common	W 264
224. *Eleusine indica* (L.) Gaertn.	Malankuri	Herb	R, W	Jun - Aug	Soil binder	Common	W 192
225. *Hygroryza aristata* (Retz.) Nees	Jangli dhan	Herb	A	Oct - Feb	Fodder, medicinal	Common	W 130
226. *Leptochloa chinensis* (L.) Nees	Not known	Herb	W	May - Dec	Fodder	Rare	W 200
227. *L. panicea* (Retz.) Ohwi	Not known	Herb	W	May - Oct	–	Rare	W 281
228. *Myriostachya wightiana* (Nees *ex* Steud.) Hook. f.	Dhansi	Herb	W	May - Nov	–	Common	W 117

Table 1 Contd.

Taxa	Bangla name	Habit	Habitat	Phenology	Potential value	Status of occurrence	Voucher specimens
229. *Oplismenus burmanii* (Retz.) P. Beauv.	Not known	Herb	R	Sep - Jan	Fodder	Rare	W 131
230. *Panicum paludosum* Roxb.	Barti	Herb	A	Jan - Dec	Fodder	Common	W 197
231. *P. repens* L.	Dhani ghas	Herb	C, R	Jan - Dec	Pasture	Common	W 280
232. *Pennisetum purpureum* Schum.	Not known	Herb	R	Sep - Feb	Fodder, pasture	Rare	W 106
233. *Phragmites karka* (Retz.) Trin. *ex* Steud.	Nal	Shrub	A	Jan - Dec	Soil binder, medicinal	Common	W 297
234. *Saccharum spontaneum* L.	Kash	Herb	Ri	Jan - Dec	Soil binder, fodder	Common	W 104
235. *Sclerostachya fusca* (Roxb.) A. Camus	Not known	Herb	W	Aug - Feb	–	Common	W 183
236. *Setaria glauca* (L.) P. Beauv.	Bajra	Herb	R	Sep - Dec	Forage, thatching, fencing, fuel	Common	W 282
65. Marantaceae							
237. *Schumannianthus dichotomus* (Roxb.) Gagnep.	Mukta pati	Shrub	W	Dec - Mar	Rough weaving fibre	Cultivated	W 88
66. Pontederiaceae							
238. *Eichhornia crassipes* (Mart.) Solms	Kochuripana	Herb	A	Jan - Dec	Manure, fodder	Common	W 220
67. Aloaceae							
239. *Aloe vera* (L.) Burm. f.	Gritakumari	Herb	H	Jan - Dec	Medicinal	Cultivated	W 208
68. Dioscoriaceae							
240. *Dioscorea alata* L.	Chupri alu	Herb	H	Oct - Dec	Tubers edible	Common	W 96

A = Aquatic, C = *Char* land, H = Homestead, M = Marsh land, R = Roadside, Ri = Riparian, S = Scrub jungle, W = Wasteland

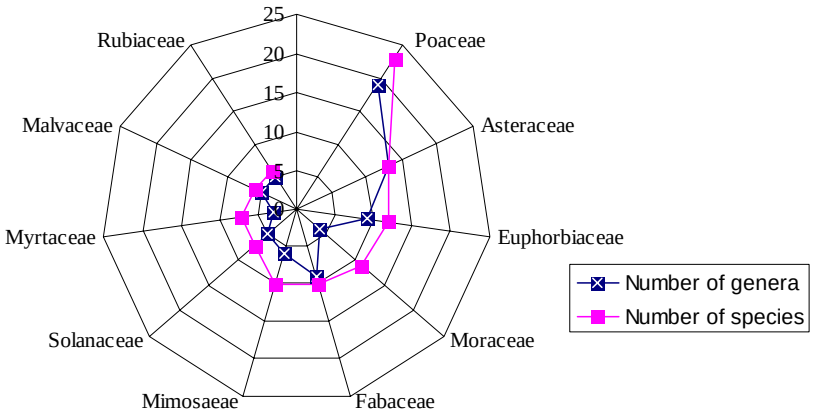

Fig. 2. Raddar diagram showing the 10 largest families in Munshiganj Sadar Upazila.

The present study identifies over 50 medicinal plants used by the local people of Munshiganj Sadar Upazila for their primary health care. They use the medicinal plants for treatment of several common diseases including dysentery, diarrhoea, diabetes, fever, cold and cough, asthma, ulcer, constipation, abdominal pain, indigestion, gonorrhoea, jaundice, stop bleeding, piles, scabies and rheumatic pain. Some of the important medicinal plants used by the local people are *Abroma augusta* (L.) L. f., *Acalypha indica* L., *Aloe vera* (L.) Burm. f., *Alstonia scholaris* (L.) R. Br., *Azadirachta indica* A. Juss., *Calotropis procera* (Ait.) R. Br., *Centella asiatica* (L.) Urban, *Coccinia grandis* (L.) Voigt., *Mikania cordata* (Burm. f.) Robinson, *Phyllanthus niruri* L., *Saraca asoca* (Roxb.) Willd., *Terminalia arjuna* (Roxb. *ex* DC.) Wight & Arn. and *Vitex negundo* L. Apart from medicinal uses some species are used by local people in their religious festivals, *viz*., *Aegle marmelos* (L.) Correa, *Areca catechu* L., *Bauhinia purpurea* L., *Butea monosperma* (Lamk.) Taub. and *Cynodon dactylon* (L.) Pers. The study has also identified some rare plants in Munshiganj sadar upazila, i.e. *Alternanthera paronychyoides* St. Hill., *Diospyros montana* Roxb., *Dipteracanthus prostratus* (Poir.) Nees, *Operculina turpethum* (L.) S. Manso, *Persicaria lanata* (Roxb.) Hassan and *Tiliacora acuminata* (Lamk.) Hook. f. & Thoms.

Though the study area has a moderately rich resource of angiospermic flora, it witnesses some threats which might cause this resource to extinct. Observations and group discussion with local people during field works resulted in identifying some major threats which include urbanization, modern agriculture, lack of awareness, exotic plantation and river erosion. Therefore, efforts should be undertaken to safeguard the plants through *ex situ* and *in situ* approaches, public awareness should be built up, and protection of habitats of the species should be ensured.

Acknowledgement

We thank Prof. Md. Abul Hassan of the Department of Botany, University of Dhaka for his help and cooperation during the course of this study.

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(Manuscript received on 3 June 2013; revised on 5 November 2013)